



Universal Acceptance Day Uruguay - May 26, 2025

Technical Workshop – Configuring a mail server and a domain name server with support for Internationalized Domain Names (IDN) and EAI

Nicolás Antoniello – ICANN

Carlos Martínez – LACNIC

I. Purpose of the Workshop

- To demonstrate in a practical way that Universal Acceptance (UA) is not just a theory, but a real technical possibility.
- Demonstrate that DNS and mail servers can be configured to support internationalized domain names (IDNs) and internationalized email addresses (IAE).
- Do it in a didactic but in-depth way, in a simulated laboratory environment.

II. Laboratory infrastructure

- A network with multiple virtual machines (LXE containers on Ubuntu Server) was set up.
 - Key components:
 - Client (CLI) with mail clients (PINE and MUTT).
 - MTA: Postfix, installed on the same machine for simplicity.
 - DNS Servers:
 - SOA (primary authority, hidden) – BIND9
 - NS1 (secondary, public) – BIND9
 - NS2 (secondary, public) – NSD
 - Recursive Server – UNBOUND
-

III. DNS System Configuration

1. **Creating a zone file in the SOA**
 - Base domain: grp1.uamvd.tlabs.training
 - TTL time set to low values to speed up testing.
 - DNSSEC is mentioned but not configured.
 2. **BIND Configuration**
 - named.conf.options : Recursion is disabled.
 - named.conf.local : declares zone and zone file as master.
 - A and AAAA records for IDN domains like stork and canyon using Punycode.
 3. **Zone transfer to NS1 and NS2**
 - NS1 configured with BIND as slave.
 - NS2 configured with NSD, including additional zone parameters.
 - Verification of correct transfer of zones.
 4. **Setting up the recursive UNBOUND**
 - Interfaces for IPv4/IPv6 are opened.
 - Allowed ranges are established for resolving DNS queries.
 - IDN domain resolution is tested using dig commands .
-

IV. Mail Server Configuration (MTA)

1. System users

- Two users are created: Nicolás and Martínez , both with accents.
- This generates mailboxes automatically linked to the operating system.

2. Installing Postfix

- Configured as "Internet Site".
- Adjustments made to:
 - myhostname
 - mydestination
 - mydomain
 - mynetworks : to allow traffic from the lab network.

3. Importance of universalized names

- Postfix must recognize the domain stork.grp1.uamvd.tlabs.training .
 - Configuration is minimal due to native UA support in modern software.
-

V. Mail clients

- PINE and MUTT were used, which work in terminal and support UTF-8 characters.
 - Inboxes have been configured for the created users.
 - Sending/Receiving Tests:
 - Mail was sent from nicolás@cigüeña... to martínez@cigüeña... .
 - Details such as common errors, loops, and Postfix adjustments to resolve them were noted.
-

VI. Technical details and advanced considerations

- It was explained in depth how Punycode works and why it is necessary.
 - The importance of keeping DNS responses under 512 bytes for UDP compatibility was discussed.
 - Emphasis was placed on security aspects related to DNS:
 - Internal name leaks
 - Risks of allowing uncontrolled AXFR transfers
 - Collisions with TLDs like .corp and name restrictions like localhost
-

VII. Reflections and conclusions

- The ecosystem was set up live in less than two hours, demonstrating technical feasibility.
- It was emphasized that for production, greater attention is required to security, reverse engineering, authentication, and DNSSEC.
- The platform used is robust and has been used by ICANN and LACNIC in multiple events.
- It was noted that many components already support UA, and with the proper configuration, any organization can begin implementing IDN/EAI domains and email addresses.